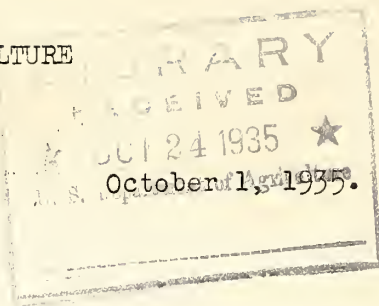


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UNITED STATES DEPARTMENT OF AGRICULTURE
Weather Bureau
Washington

Office of the Chief



CIRCULAR

POTENTIAL TEMPERATURE AND SPECIFIC HUMIDITY TO BE ADDED
TO AIRPLANE WEATHER OBSERVATION REPORTS

Beginning October 15, 1935, the potential temperature and specific humidity for each significant level will be transmitted in the daily teletype reports.

The potential temperature will be indicated to the nearest whole absolute degree ($^{\circ}\text{C.} +273$) and will follow the relative humidity in the message.

The specific humidity will follow the potential temperature in the message and will be obtained to one decimal place in grams of water vapor per kilogram of moist air. However, the decimal point will be omitted from the teletype report, the last figures always being deciphered as tenths, i. e., of the unit, g./kg. When the figure to the right of the decimal point is zero, a cipher will be transmitted, e. g., 16.0 will be transmitted 160. When the computed value is less than 1.0, the zero to the left of the decimal point will be transmitted, e. g., 0.7 will be transmitted as 07.

Following are some examples and the corresponding data to be transmitted:

Potential temperature °A. <u>✓</u>	Computed values of specific humidity g./kg.	<u>Transmitted by teletype or radio</u>	
		<u>Potential temperature</u>	<u>Specific humidity</u>
240	0.7	40	07
267	1.4	67	14
273	3.0	73	30
306	20.7	06	207
325	6.9	25	69

✓

First and last examples represent the approximate extremes of potential temperature and therefore the omission of the figure 2 or 3 in the transmission should not be confusing.

Stations telegraphing their APOBS in word code will indicate the potential temperatures and specific humidities by two words, following the Temperature-Humidity word, for each significant level taken from the "Pressure-Temperature" words, pp. 19-28, Weather Code 1931. The first of these words will indicate the potential temperature as shown in the following examples: 241°A.; double the digits 24 and indicate 43 in the first code element; indicate the digit 1 in the second code element. Thus the code word GOODBYE will indicate 241°A. Similarly, 266°A. will be indicated by MANUAL; 293°A., MOURNFUL; 310°A., NAIL; 335°A., NISMUR; etc.

The second word will indicate the specific humidity as shown in the following examples:

16.9 g./kg.; double the digits 16 and indicate 32 in the first code element; indicate the digit 9 in the second code element. Thus the code word FATTY will indicate 16.9 g./kg. Similarly, 23.2 g./kg. will be indicated by GIDDY; 9.3 g./kg., BOASTFUL; 0.8 g./kg., USURP; 0.1 g./kg., UNBUCKLE; etc.

Circular dated December 1, 1934, Instructions for Daily Transmission of Airplane Weather Observations, is amended accordingly.

Instructions for obtaining potential temperatures and specific humidities for inclusion in the daily transmission of APOBS are being furnished the stations where airplane observations are made.

C. C. Clark,
Acting Chief of Bureau.

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